



TREATING VASCULAR DISEASE, INJURY, AND INFLAMMATION

SUMMARY

The Laboratory of Cardiovascular Sciences of the National Institute on Aging, is seeking parties interested in licensing or collaborative research to co-develop a cell surface protein observed to reduce inflammation and related injuries. In vivo and in vitro data are available.

REFERENCE NUMBER

E-165-2011

PRODUCT TYPE

- Therapeutics

KEYWORDS

- atherosclerosis
- restenosis
- pattern recognition receptor (PRR)
- Soluble Receptor for Advanced Glycation Endproducts (sRAGE)

COLLABORATION OPPORTUNITY

This invention is available for licensing and co-development.

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DESCRIPTION OF TECHNOLOGY

The receptor for advanced glycation end products (RAGE) is a cell surface protein that triggers signaling pathways leading to inflammation. While acute inflammation serves to resolve pathogen infection and stresses, which promote tissue repair, persistent inflammation results in maladaptive tissue remodeling and damage. RAGE stimulated signaling and inflammation has been implicated in multiple detrimental human illnesses including diabetes, atherosclerosis, restenosis, arthritis, and Alzheimer's disease.

The soluble version of RAGE (sRAGE) binds the same target molecules (advanced glycation end products), but cannot activate inflammatory signaling pathways. For this reason, sRAGE is thought to act as a decoy for RAGE. sRAGE reduces inflammation and pathogenic consequences associated with RAGE signaling. The administration of sRAGE has been used to treat atherosclerosis and arterial restenosis in animal models. The inventors established a way to produce human sRAGE with more than 1000-fold

greater potency than current methods. Production of full length human sRAGE in cultured mammalian cells enables addition of mammalian post-translational modifications that dramatically enhance potency. This invention covers methods of production, the resulting modified sRAGE molecules, and methods of using this highly potent sRAGE for treating adverse vascular conditions.

POTENTIAL COMMERCIAL APPLICATIONS

- Atherosclerosis therapeutics
- Prevention of vascular inflammation
- Treating vascular injuries due to angioplasty or traumatic injury
- Treating vascular complications of Diabetes mellitus
- Alzheimer's Disease treatment based on amyloid-beta protein binding

COMPETITIVE ADVANTAGES

- Greater than 1000-fold increased potency over sRAGE produced in insect cells
- Readily scalable production as a recombinant protein secreted from CHO cells
- Simple affinity purification method

INVENTOR(S)

[Li Lin](#) (NIA)

DEVELOPMENT STAGE

- Discovery (Lead Identification)

PATENT STATUS

- **U.S. Filed:** US Application No. 14/368,374, Filed: 6/24/2014
- **Foreign Filed:** PCT application PCT/US2013/020103 filed 03 Jan 2013

THERAPEUTIC AREA

- Immune System and Inflammation